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REPORT ON  
GEOCHEMICAL SAMPLING AND GEOLOGICAL MAPPING

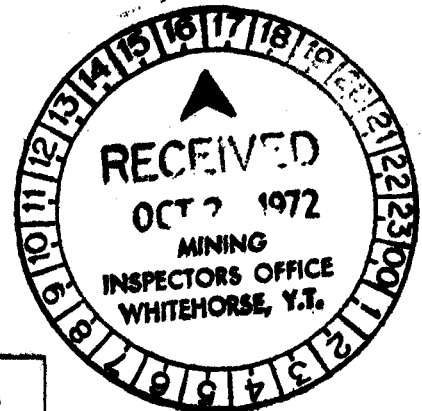
BEN, PAL AND KAP CLAIMS

Latitude 62°42'      Longitude 137°12'

115-I-11

Whitehorse Mining Division  
Yukon Territory

September 25, 1972



Alan R. Archer

This report has been examined by the Geological Evaluation Unit and is recommended to the Commissioner to be considered as representation work in the amount of

\$ 11,816.29

Consulting Geological Engineer

  
Resident Geologist or  
Resident Mining Engineer

Considered as representation work under  
Section 53 (4) Yukon Quartz Mining Act.

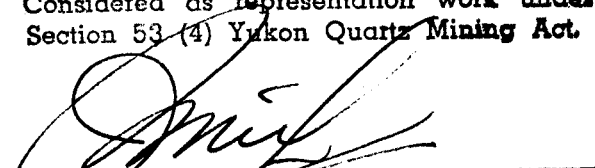
  
Commissioner of Yukon Territory

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Maps in Pocket

Figure M2 - Claim Location Map - Scale 1"= 1000 feet

Figure M3 - Geology Map - Scale 1"= 1000 feet

Figure M4 - Sample Location Map - Scale 1"= 1000 feet

Figure M5 - Copeer Geochemistry - Scale 1"= 1000 feet

## INTRODUCTION

The exploration program on the Ben, Pal and Kap claims described in this report was done by Archer, Cathro & Associates Ltd. on behalf of Dawson Range Joint Venture during the period July 16 to August 23, 1972. Field men were D. Bruce, J. Dickinson, D. Eaton, L. Barteski and K. Carswell. Supervision was provided by M.P. Phillips and the writer, A.R. Archer.

The objective of the program was to locate the true position of the claims relative to the adjoining Minto claims, held by Silver Standard Mines Ltd., and to explore for copper mineralization by geological mapping and geochemical sampling.

## PROPERTY, LOCATION AND ACCESS

The property consists of 119 mineral claims recorded at Whitehorse, Yukon Territories as follows-

<u>Claim Name</u>	<u>Grant Number</u>	<u>Expiry Date</u>
Pal 1-48	Y62343-Y62390	September 28, 1972
Kap 1-2	Y62391-Y62392	September 28, 1972
Ben 1Fr-14Fr	Y63234-Y63247	October 19, 1972
17Fr-26Fr	Y63250-Y63259	October 19, 1972
27-28	Y66831-Y66832	July 31, 1973
29Fr-53Fr	Y63262-Y63286	October 19, 1972
54-58	Y66833-Y66837	July 31, 1973
59	Y67057	August 25, 1973
60Fr	Y63293	October 17, 1972
61	Y67050	August 25, 1973
62Fr	Y63295	October 17, 1972
63-64	Y67059-Y67060	August 25, 1973
65	Y66838	July 31, 1973
66Fr-72Fr	Y63299-Y63305	October 19, 1972

Figure M2 illustrated the relative position of all claims as located in the field. Claim tags were attached to the Pal and Kap claim posts. Tags were

not available for the Ben claims at the time field work was done.

The property is located at Lat. 62°42' and Long. 137°12' about ten airmiles west of Minto on the Klondike Highway. Access from Minto is by helicopter as illustrated in the insert in the upper right hand corner of each figure.

#### GEOLOGY

Figure M3 illustrates areas where outcrop or "near outcrop" fragments were noted. Less than ten per cent of the claims have outcrop, most of which is found along ridges or in stream cuts. The property is underlain by Klotassin Batholith granodiorite that is capped by Tertiary Carmacks Volcanics on the southwest corner. G.S.C. Memoir 189 assigns an Upper Jurassic or later date to the Klotassin Batholith, however recent G.S.C. mapping (Paper 72-1 Part A) to the west and south of the Carmacks Sheet gives a Permian age.

A description of the rock units is as follows:-

Granodiorite - This unit is light colored, weakly foliated and porphyritic. Pink poikilitic phenocrysts of orthoclase up to 20 mm in diameter occur in a fine to medium grained matrix. Biotite-hornblende is common. Magnetite and epidote are weakly disseminated throughout the rock. This unit is cut by light coloured aplitic to pegmatite dykes up to twenty feet wide. The presence of fine shredded biotite growing out of hornblende and phenocrysts of orthoclase suggest the granodiorite has undergone weak regional potassic alteration.

Copper mineralization occurs in a strongly foliated fine-medium grained phase characterized by a high biotite-quartz content and absence of hornblende. Large orthoclase phenocrysts are not common. The sub-parallel alignment of biotite and quartz impart a gneissic structure to the rock with a

northwesterly trend. Individual zones appear to be less than fifty feet wide and only occur on the west edge of the claims.

Carmacks Volcanics - The unit contains basalts, andesites and porphyritic dacites. The dark green basalts and andesites contain a few small feldspar phenocrysts and chlorite filled amydules. The dacite contains crowded fine grained phenocrysts of feldspar, quartz and hornblende in a soft dark green aphanitic matrix.

Copper mineralization is associated with strongly foliated quartz, biotite rich zones within the Klotassin Batholith that are probably partially absorbed rood pendants. Most of the mineralization is seen as malachite staining although minor chalcopyrite and bornite were noted in a few locations. An attempt was made to measure foliation attitude in each outcrop. The overall trend is a north to northwest strike with a steep westerly dip on the east side of the property gradually flattening to about 45° west on the west side of the property. On the Silver Standard property, the foliation has a westerly dip in the trenches near the eastern boundary and an easterly dip in the area of extensive bulldozing. This data suggests that the copper bearing, strongly foliated biotite, quartz rich zones form an open syncline with the Ben and Pal claims on the edge of the eastern limb.

#### GEOCHEMICAL SAMPLING

##### General

The copper bearing zones are mineralized with bornite, chalcopyrite, chalcocite and traces of pyrite and molybdenite. Weathering results in the conversion to copper oxide with little change in copper content. Due to the low pyrite content, mobilization of copper in ground water is minimal, making stream sampling

ineffective unless the stream cuts the zone. However soil sampling has proved effective in locating mineralized zones even through deep residual overburden covered by a thin layer of glacial till. A soil sampling grid spacing of 400 feet by 400 feet or 200 feet by 800 feet on the known properties would have located all areas of interest. The best indicator metal is copper. Copper background in the district ranges from 10 to 40 parts per million (ppm) with threshold about 40 ppm. Values of at least 100 ppm and often more than 1000 ppm are obtained over or near mineralized areas. Swampy or organic rich areas sometimes act as copper collectors and occasionally return values 10 to 30 ppm higher than regional background.

#### Technique

Tie line zero was established to give a north and south co-ordinate and three approximately north-south baselines were cut using chain and compass for control. The baselines were well marked with orange-glo flagging and blazing on trees and co-ordinates of the baseline were marked on flagging or blazed trees at 200 foot intervals. Two tie lines were chained to determine divergence of the baselines. Ground control was provided by government airphotos enlarged to 1000 feet to the inch.

Soil samples were taken at either 200 or 400 foot intervals on cross lines between the baselines using pace and compass control. At each sample point a 18 inch lath picket was marked with the sample location co-ordinate in multiples of 100 feet and the soil bag sample number. For example, a lath on zero tie line 200 feet east of Baseline C would be marked BLC OS, 2E. Figure 4 shows the soil sample bag number for each point and this would provide the simplest

method of relocating the relative position of any soil sample picket in the field. The soil sample points on Figure 4 and 5 are shown as the best possible in their true location. A pace and compass traverse that wandered slightly between baselines is drawn in a straight line from the starting position to the actual finishing position. Soil samples were obtained by digging to a B or B+C horizon with a grub hoe mattock. Samples were collected in pre-numbered kraft envelopes and air expressed to Chemex Labs. Ltd., North Vancouver, B.C. where they were assayed for copper by atomic absorption spectrometry of a nitric-perchloric extraction of a minus 80 fraction.

Interpretation

Figure 5 illustrates copper assays in ppm. Assays exceeding threshold for the area have been contoured. One weak to moderate anomaly 3000 feet in length and up to 600 feet wide is found near the western boundary of the claim group where a number of outcrops contain weak copper mineralization associated with strongly foliated quartz-biotite rich banding. A number of one or two sample anomalies scattered throughout the claims may represent erratic mineralization.

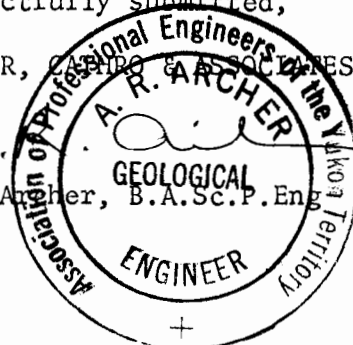
CONCLUSIONS AND RECOMMENDATIONS

Both soil sampling and mapping have indicated an area at least 3000 feet by 600 feet on the western boundary of the property that warrants further exploration by bulldozer trenching.

Respectfully submitted,  
ARCHER, CONSULTING ENGINEERS LTD.

a.

A.R. Archer, B.A.Sc.P.Eng



ARA:st





UNITED KENO HILL MINES LTD.  
DEF CLAIMS

SUN CLAIMS

open ground

SILVER STANDARD MINES LTD.  
MINTO CLAIMS

KLONDIKE EXPLORATIONS LTD.  
DARK CLAIMS

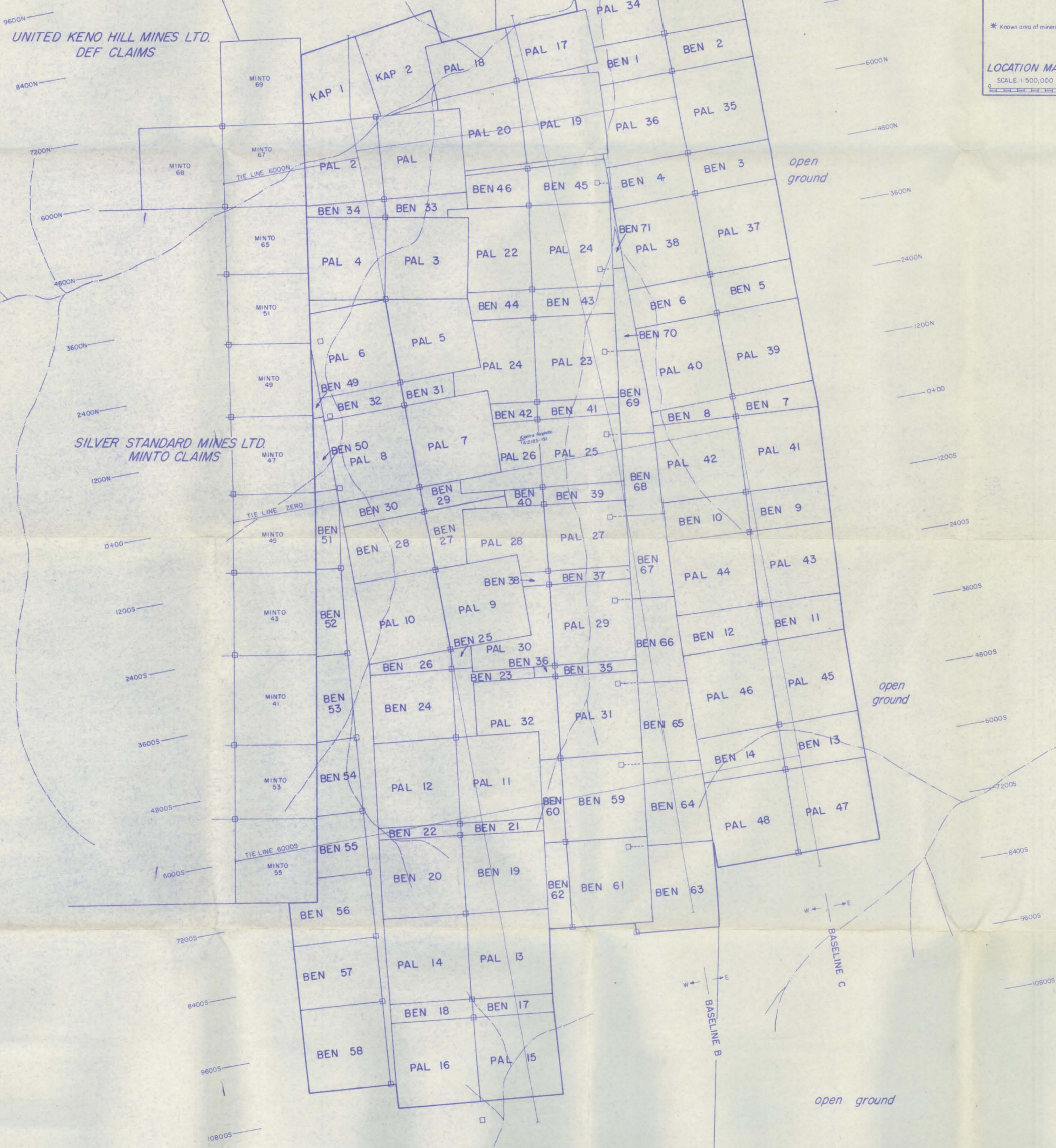
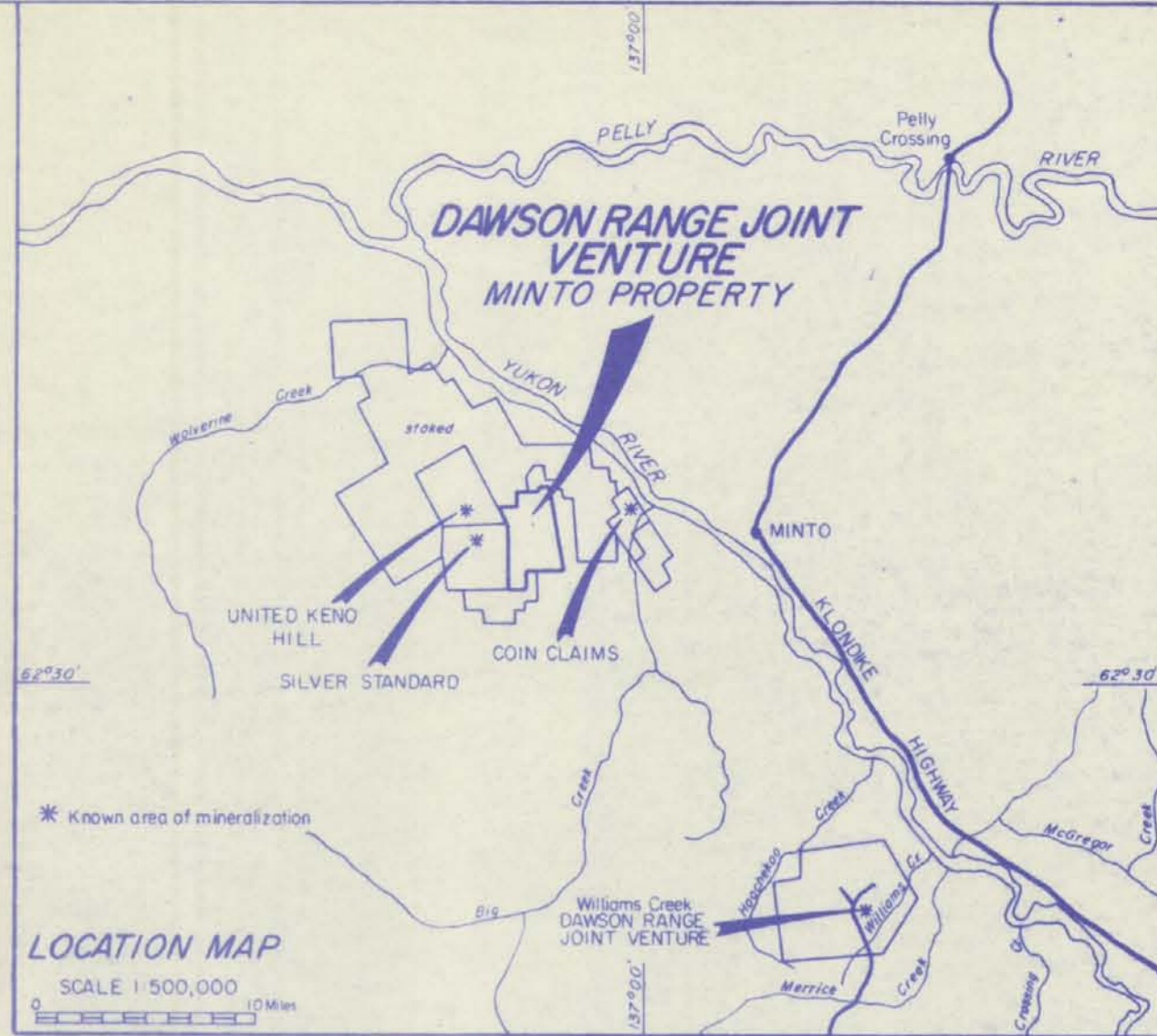
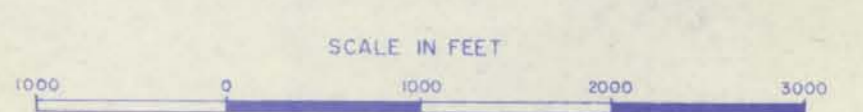


FIG. M2  
ARCHER, CATHRO & ASSOCIATES LTD.  
**CLAIM LOCATION MAP**  
PAL, BEN & KAP CLAIMS  
MINTO PROPERTY  
DAWSON RANGE JOINT VENTURE



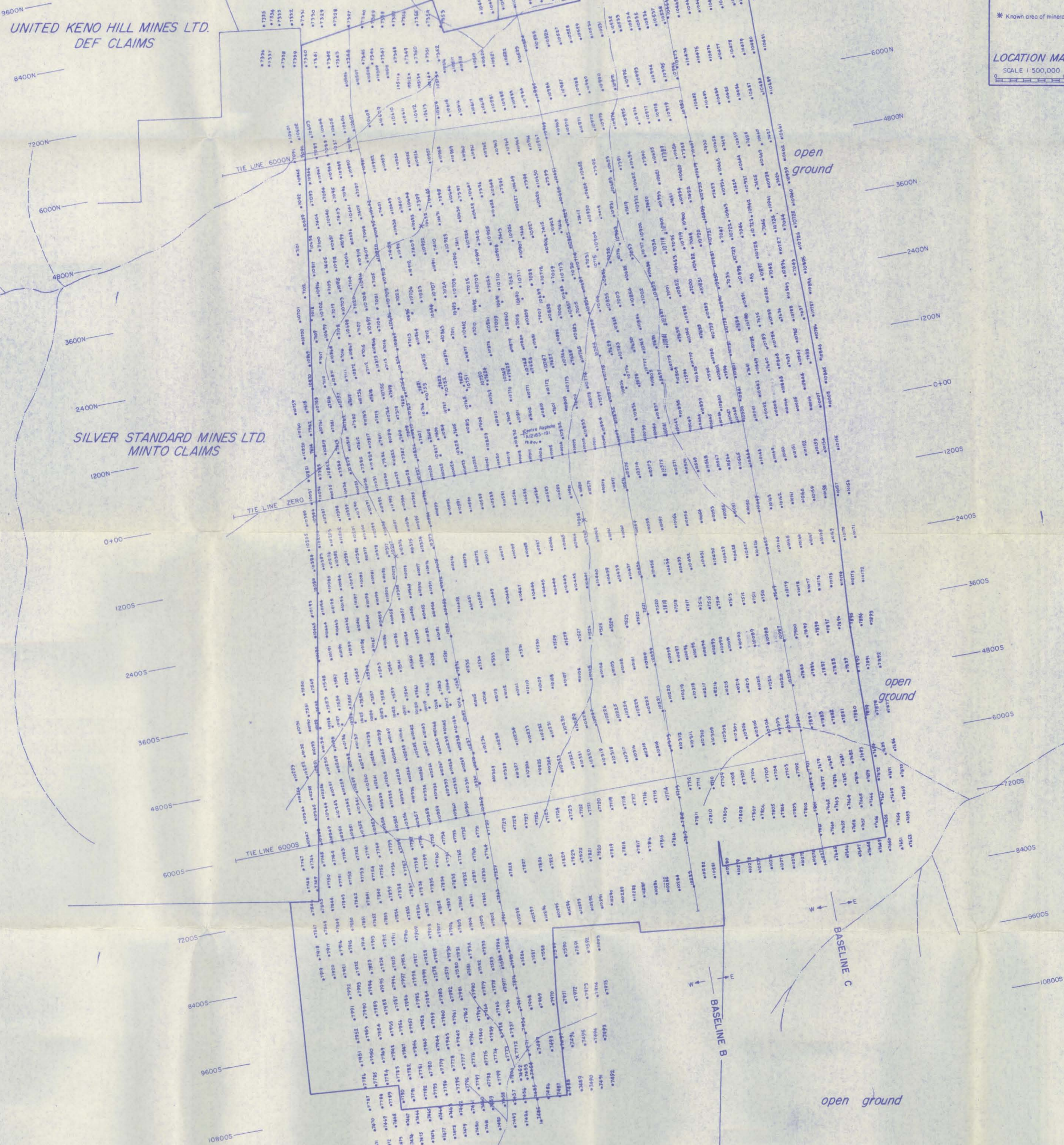
Bearing of baselines 350°

To accompany report by A. Archer, dated September 25, 1972.



UNITED KENO HILL MINES LTD.  
DEF CLAIMS

SUN CLAIMS



SILVER STANDARD MINES LTD.  
MINTO CLAIMS

KLONDIKE EXPLORATIONS LTD.  
DARK CLAIMS

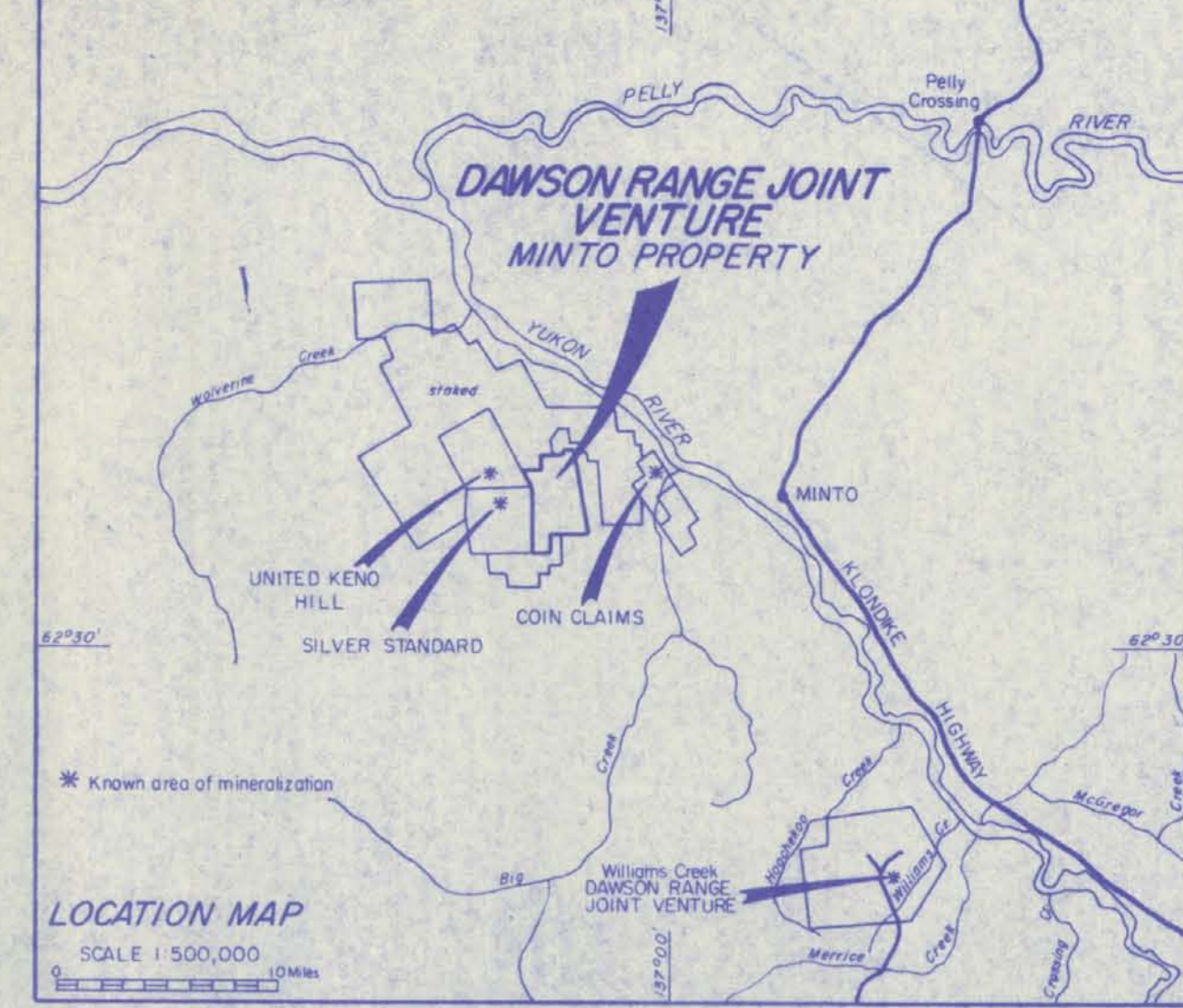
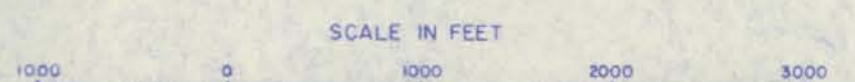


FIG. M4  
ARCHER, CATHRO & ASSOCIATES LTD.  
**SAMPLE LOCATIONS**  
PAL, BEN & KAP CLAIMS  
MINTO PROPERTY  
DAWSON RANGE JOINT VENTURE



Bearing of baselines 350°

To accompany report by A. Archer dated September 25, 1972



UNITED KENO HILL MINES LTD.  
DEF CLAIMS

SUN CLAIMS

BASELINE A

BASELINE B

BASELINE C

open ground

9600N  
8400N

7200N  
6000N

4800N  
3600N  
2400N

SILVER STANDARD MINES LTD.  
MINTO CLAIMS

1200N  
0+00

1200S  
2400S

3600S  
4800S

6000S  
7200S

8400S  
9600S

10800S

KLONDIKE EXPLORATIONS LTD.  
DARK CLAIMS

BASELINE A

BASELINE B

BASELINE C

open ground

LOCATION MAP  
SCALE 1:500,000

**LEGEND**

25 Sample value for copper in parts-per-million  
40 Copper values above threshold for area

Samples assayed by Chemex Labs Ltd. analyses by atomic absorption spectrometry of a nitric-perchloric extraction.

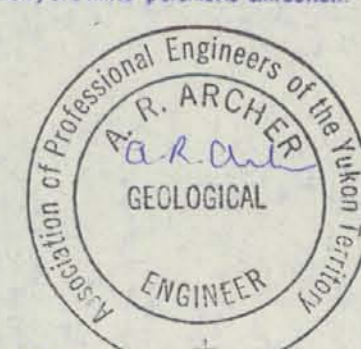


FIG. M5  
ARCHER, CATHRO & ASSOCIATES LTD.

**COPPER GEOCHEMISTRY**  
**PAL, BEN & KAP CLAIMS**  
MINTO PROPERTY  
DAWSON RANGE JOINT VENTURE

SCALE IN FEET  
0 1000 2000 3000